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THE
AMERICAN NATURALIST.

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THE SECOND DECENNARY OF THE AMERICAN NATURALIST.

IN entering upon the second decennial period of the existence of the American Naturalist, we may be pardoned for looking with some pride upon the success that has attended its establishment. If the reader will turn to the introductory words stating our aims in the first number, published in March, 1867, we think he will agree with us that the promises there given have been fulfilled as completely as could reasonably be expected.

Our aim has been to popularize the best results of the study of natural history, and thus serve as a medium between the investigator on the one hand and the teacher and student on the other. Thus, while we have attempted to inform the science-teacher of the latest discoveries in biology and geology in their broadest sense, including the theories of the origin of plants and animals, and the history of the earth and man, we have endeavored to attract and sustain the interest of the young. We know that a number of young naturalists have made their *début* in the scientific world in our magazine, while some of the most important results of the investigations of our leading scientists have first seen the light in its pages.

The progress in biology during the past ten years has been greater than is generally imagined. Text-books become superannuated within a decennary. Teachers and even working naturalists need the presence and stimulus of a monthly journal reaching beyond the limits of their specialties to keep them from nodding at their work. If we have failed to record all the new discoveries, it has been due in great part to lack of space.

We must again return thanks to our contributors, whose zeal and generosity have made the magazine what it is. From the first our articles have been given freely, out of love for the cause of science, and a desire for its free progress.

We have, in moments of discouragement and financial distress, felt sorely the want of proper material support from a people numbering upwards of forty-four millions, and of so much general intelligence and culture as ours; but so rapid has been the diffusion of science among the masses, even since the foundation of this journal, that we feel confident of ample support in the future. That the magazine has not been fully sustained pecuniarily may have been partly its own fault. Our critics tell us that it has not always been sufficiently "popular." We have endeavored to educate a public sentiment in behalf of the study of pure natural science for its own sake, and have sought to instruct rather than to amuse our readers. But the worst times, we trust, have been passed, and we confidently hope, with the new year we are entering upon and the encouraging auspices of the new arrangements begun last year with the present publishers, to excite a more decided enthusiasm among lovers of nature in the thorough success of a journal devoted to their interests.

As it is, the future of our journal is in the hands of persons of scientific culture. It is to the friends of liberal education, — to those who would advance the means of diffusing a knowledge of the methods of right thinking and working in science, which has still to encounter obstacles on all sides, from the ignorant and uncultivated as well as from even the cultivated *littérateur* or poet, trained in all directions except one, that of scientific modes of thought (witness Carlyle's late utterance respecting the theory of evolution), — it is to the friends of the best culture, which embraces scientific as well as classical and technological learning, that we would appeal for aid and support.

The study of science teaches us how to make nature minister to our wants. We learn the lesson from the study of nature that man's progress in intellectual grasp, and increase in moral force, have depended on the gradual improvement of his body. His mental and moral advance is in a ratio corresponding to his ob-

servance of the laws of physiology in its broadest sense. Right conduct is based on obedience to physiological and hygienic laws; and let us not forget that all future progress in the higher education of mankind is primarily dependent on the observance of scientific laws, especially those laid down by the biologist.

The intellectual and moral progress of man, all that is to emancipate him from the gross and materialistic forces of ignorance, bigotry, and prejudice — the outgrowths of the animal propensities he has, with little doubt, inherited from the lower orders of animals — is coördinated with his progress in the knowledge and application of physical laws. If his remote past is associated with reminiscences of the *Amphioxus* and *Ascidians*, the one lesson derived from a study of past creations and of existing life is the hope of a glorious intellectual and moral future for his race, and of his increasing capacity for appreciating the Infinite Power which, in a way at present unknown to his philosophy, guides the material and spiritual forces of the universe, and causes them to minister to his highest intellectual and spiritual development.

IS PROTECTIVE MIMICRY DUE TO NATURAL SELECTION?

BY ALFRED W. BENNETT.

IN the *American Naturalist* for September is an abstract of an article by that able naturalist, Fritz Müller, advocating the view that the curious phenomena of protective mimicry in *Lepidoptera* can be fully explained by the theory of natural selection. Notwithstanding the deference that is due to the conclusion of so eminent an observer, I have thought that the other side of the question should be heard.

I think it will be generally admitted that when we have a series of similar facts occurring throughout both the animal and vegetable kingdoms, an explanation should be sought that will cover the whole of these facts, while one which explains a portion of them only, but is obviously inapplicable to the remainder, should at least be looked on with suspicion and accepted with hesitation. Now external resemblances of a most minute kind between widely separated species both of animals and plants are